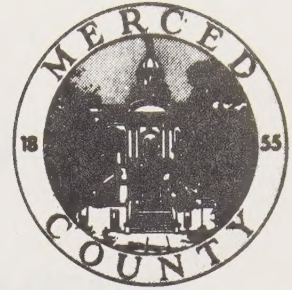


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Element adopted:

Planning Commission: May 29, 1973

Board of Supervisors: Sept. 4, 1973

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I. CONSERVATION

A. Introduction

The requirement for a Conservation Element to the General Plan was established by action of the California State Legislature via Title 7, Section 65500, and amendments thereto, (i.e., Planning & Zoning Law). It is mandatory that this element include development and utilization of natural resources, including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals and other natural resources. It may include the following:

1. The reclamation of land and waters.
2. Flood Control.
3. Prevention and control of pollution of streams and other waters.
4. Regulation of the use of land in stream channels.
5. Prevention, control and correction of the erosion of soils.
6. Protection of watersheds.
7. The location, quantity and quality of the rock, sand, and gravel resources.

The California Environmental Quality Act places the responsibility on our County for the evaluation of projects (development proposals) as to their impact upon the environment. Further, the law provides the legal base for requiring developers to conform to the conservation element requirements of the County

and in all cases permits the County to reject those projects that will degrade the environment. The understanding of "Environmental Relationships" is important because it allows the citizen to be more aware of the value of those resources which are not outwardly apparent, but are nevertheless important in the ecological balance.

The function of the General Plan is to state planning principles applicable to each land use proposed in the community. This Conservation Element utilizing the Open Space Element expands that plan and attempts to explain man's interrelationship with the environment he seeks to change.

The attainment of the goals of this element depend considerably on the degree to which the County and incorporated cities are able to influence and/or control the private sector. Urban planning programs have characteristically given insufficient attention to the natural elements of land, water, air, minerals, fish & wildlife, and open space, and have emphasized the growth and economic considerations.

The result is that insensitivity to interrelated aspects of resources management has evolved. It is important, therefore, that actions be taken by the County and the cities to enhance the environmental amenities of the urban and rural areas.

B. Policy

Establishment of an overall broad policy of direction is the

only source of direction for the implementation of an element.

Agreement on a broad policy is absolutely essential if there is to be commitment to specific policies.

1. Provide an element that is sensitive and responsive to the interrelated aspects of resource management and urbanization.
2. Include all the requirements of the law, but utilize literary license in the organization of content of the element due to the interdependency of the subject matter.
3. Develop an element that is meaningful to the citizens of the valley while recognizing city, state or national interests that clearly transcend those of the County.
4. Manage all natural resources in this element to optimize their contribution to the development of the area in that the greatest pressure for use of natural resources comes from expanding population. Competition for the use of land (whether it be for city parks, commercial, industrial, or residential development) is compounded by pressure for maximizing economic utility on one hand and social utility on the other.
5. Preserve those areas that have high environmental value for the future generations of the County.

C. Implementation

Conservation has been treated as a coexistent part of open space preservation and issues and recommendations throughout the open

space element are designed to conserve resources through a system of careful development and appropriate utilization of land and water resources inventoried herein.

D. Recommendations

1. That the land and water resources be continually inventoried, balancing the aesthetic value of the natural resources against economic benefit, in order to insure that uses proposed are essential and should receive priority or guidance for incorporation in the Land Use Element of the General Plan.
2. That the Open Space Element and the Open Space Zoning Ordinance be the continuing protection and enhancement vehicles to carry out the conservation and preservation concepts.
3. That the "Environmental Quality Ordinance" of the County be utilized to measure the environmental impact that a "project" will have on the Land and Water Resources of the County.

"The Land Was Ours

Before We Were the Lands"

— Robert Frost

This opening line from Frost's brief poem, "The Gift Outright," expresses an infinite prophecy. That he who takes possession of land--an acre, a section, a state, a country--will by his treatment of the land, shape his own destiny; for man, like all creatures, is ultimately dependent upon the land for his existence.

Frost recognized with a philosopher's insight the absolute interdependence of man and his environment--all that vast interlacing of soils, waters, plants, minerals, and wildlife which combine as The Land. And the poet, in one vital image, has embodied our "ecological conscience."

The timelessness of this one poetic phrase applies equally to a new country where men had not yet recognized the meaning of belonging to the land--and to an old country despoiled by those who do not understand their ultimate dependence on the land.

II. LAND RESOURCES

A. Introduction

This section of the conservation element deals with the basic commodity of the County, i.e., land.

From the initial urban boom to present times, there has been a constant conflict between the planner and "money changer" interests. The profit-making forces, being predominant, have dictated a near uncontrollable urbanization of the rural areas. Within the last few years, citizen involvement and planning support has mounted a neutralizing force to recognize a new view - "The ultimate holding capacity of the land". "Zoning", with its implications of density limits and the intrinsic ability of land resources to tolerate or reject use, has come of age.

The preservation of land has been weakened in the past by failure to recognize its importance; by conflicting objectives with regard to land use, and by the absence of a coordinated comprehensive program to conserve the resource. Open space has been the by-product of other activities, and the high cost of acquiring it is the biggest barrier to preserving it.

The evolution of new views has been slow to materialize, and until recent times (1940), it was assumed that land with its particular soil mantle and vegetation cover was plentiful and could be used indiscriminately to meet the needs of man. It

was not generally considered to be a limited resource that should be properly utilized and protected for the good of present and future generations.

B. Inventory

1. Soils

Merced County, located in the San Joaquin Valley, is bordered by two mountain ranges. To the east lie the granitic Sierra Nevada, and to the west the Diablo Range of sedimentary and metamorphosed sedimentary rocks. Small intermittent streams enter the valley from the semiarid mountains of the Diablo Range, but soon are lost on alluvial fans, while perennial rivers flow from the more humid and larger drainage areas of the Sierra Nevada. Water has spread over the surface, has deposited sand, silt and clay - eroded from pre-existing soils and rocks, and has built up large coalescent alluvial fans along each side of the valley. The larger and more gently sloping fans on the east side are built up principally by deposits from granitic rock sources, whereas the smaller and generally more steeply sloping fans on the west are built up by material originating in the sedimentary rocks of the Coast Range. As a result, the valley floor consists mainly of two kinds of alluvial material that differ widely in mineralogical origin, which is reflected in the soils. All the rivers and creeks entering the valley, except the San Joaquin River, have built fairly

well defined alluvial fans that form slopes of the valley floor. The San Joaquin River, however, is well entrenched, and sediments were distributed under natural conditions by numerous meandering sloughways.

Some of the alluvial material is fresh and unweathered, some has been developed into soil for thousands of years. Texture ranges from fine clay and silt in the lower basin area, to gravel and cobblestone in the old high terraces, to strongly alkaline in the saline-alkali basin. In agricultural value the soils range from high to low. The best are fertile and productive, the poorest strongly acid, cobbly, leached and infertile, or are so high in salts and alkali as to be unfit for cultivation.

Attached Soil Map of the County of Merced (see Map I) is a small scale map delineating different geographic areas, and showing the general patterns of soils that occur within each area. Each area shows one or more soils similar in general soil characteristics. Each area on the map is called a soil association. Soil associations differ from one another by having contrasting soil properties, or by differing in potentialities. For example, one association may be dominated by sandy soils, while another would be mostly clayey.

General soil maps are suitable only for general program

planning. There are 36 different soil associations on the general soil map of Merced County. These are named for the major soil series that occur within each association, but the names are not listed in this report. These 36 soil associations have been combined into 7 groups by the Soil Conservation Service, Merced, as follows:

GENERAL SOIL GROUPS (See Map I)

<u>Group #</u>	<u>Soil Assoc. #</u>	<u>Interpretive Groupings</u>
1	1 - 5	Areas dominated by deep and very deep, nearly level, gently sloping, somewhat poorly to well drained soils.
2	6 - 8	Areas dominated by deep and very deep, nearly level to gently sloping well drained soils.
3	9 - 18	Areas dominated by shallow to deep, nearly level to steep soils with moderately to very slowly permeable subsoils.
4	19 - 25	Areas dominated by shallow to very deep, poorly to well drained saline alkali soils.
5	26 - 27	Areas dominated by moderately deep and very deep, nearly level coarse textured soils.
6	28 - 34	Areas dominated by very shallow to deep, well to somewhat excessively drained soils on gently sloping to very steep uplands.
7	35 - 36	Areas dominated by miscellaneous land types.

SOIL GROUPS

Group 1: Recent alluvial fans and valley floor

Capability Class: Mostly Class I, some Class II

Vegetative Group: A

Hydrologic Group: Mostly Group B, some Group C

Natural Drainage: Well draining

Runoff: Slow to very slow

Erosion: Slight or none

Present land use: Irrigated cropland: row and field crops,
alfalfa, corn & truck crops, orchards.

11.7% of the County - 148,487 acres

Group 2: Alluvial fans and terraces

Capability Class: Class II

Vegetative Group: A

Hydrologic Group: Some B, some C

Natural Drainage: Well

Runoff: Some slow, some medium

Erosion: Slight

Present land use: When water is available: irrigated crops,
pasture, grapes, almonds
When no water is available: dry farmed
grain, range

4.2% of the County - 53,303 acres

Group 3: Old and very old terraces, alluvial fans and valley floor

Capability Class: Mostly Class III and IV, some Class VI

Vegetative Group: C, D and G

Hydrologic Group: Some C, mostly D

Natural Drainage: Well

Runoff: Mostly slow, some medium, some rapid

Erosion: Some none, some moderate, mostly slight

Present land use: When water is available: irrigated crops,
pasture, orchards
When no water is available: dry farmed
grain, hay & range

23.5% of the County - 298,243 acres

Group 4: Alluvial fans, mostly basin area

Capability Class: Some Classes II and III, mostly Class IV

Vegetative Group: Some E, mostly F

Hydrologic Group: Mostly D

Natural Drainage: Poor to moderate

Runoff: Very slow, two areas very slow to ponded

Erosion: Hardly any

Present land use: Irrigated cropland and pasture, alfalfa,
cotton, duck ponds, some salt tolerant
irrigated crops.
Where no water available: range.
(60,000 acres are natural seasonal wet grassland)

26.1% of the County - 331,240 acres

Group 5: Fans of the valley floor

Capability Class: Class III

Vegetative Group: Mostly B

Hydrologic Group: Some A, some B

Natural Drainage: Some poor; mostly excessively well

Runoff: Some slow, some none

Erosion: Moderate to severe wind erosion

Present land use: Irrigated crops and orchards

13.1% of County - 166,255

Group 6: From nearly level to mostly steep uplands

Capability Class: Some Class VI, mostly Class VII

Vegetative Group: I, J and G

Hydrologic Group: Some C, some D

Natural Drainage: Well

Runoff: Some medium, mostly rapid

Erosion: Some moderate, mostly severe

Present land use: Annual range, some dry farmed

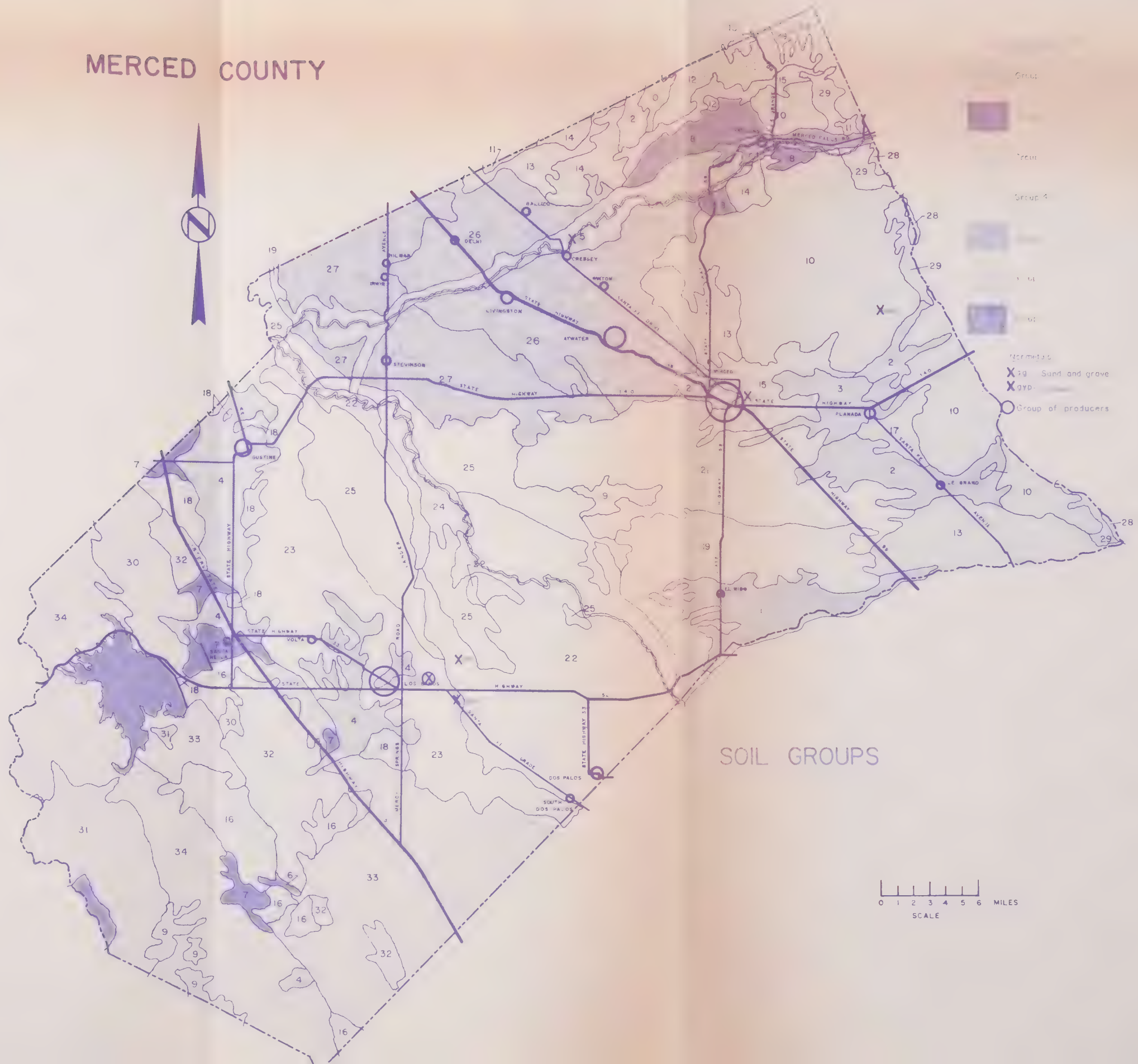
18% of County - 162,447 acres

Group 7:

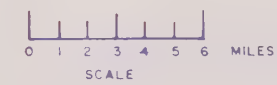
Rock: Steep and very steep uplands, 30 - 75% slope, over 30% rock outcrops with very little soil material, scattered vegetation, severe erosion.
0.1% of County - 1,269 acres

Tailings: Bordering Merced River, stone and cobble piles left from gold dredging, severe erosion.
0.5% of County - 6,345 acres.

MERCED COUNTY



SOIL GROUPS



LAND CAPABILITY CLASSES

The Land Capability Classification is a national system. It is an interpretive grouping made primarily for agricultural purposes. The classification begins with individual soils and groups them into different categories, primarily on their ability to produce common cultivated crops and pasture plants without soil deterioration over a long period of time.

Land suited for cultivation and other uses

- | | |
|-----------|---|
| Class I | Soils in Class I have few limitations that restrict their use. |
| Class II | Soils in Class II have some limitations that reduce the choice of plants or require moderate conservation practices. |
| Class III | Soils in Class III have severe limitations that reduce the choice of plants or require special conservation practices, or both. |
| Class IV | Soils in Class IV have very severe limitations that restrict the choice of plants, require very careful management, or both. |

Land generally not suited for cultivation

- | | |
|---------|---|
| Class V | Soils in Class V have little or no erosion hazard, but have other limitations that are impractical to remove. |
|---------|---|

Class VI	Soils in Class VI have severe limitations that make them generally unsuited for cultivation.
Class VII	Soils in Class VII have very severe limitations that make them unsuited for cultivation.
Class VIII	Soils and land forms in Class VIII have limitations that preclude their use for commercial plant production and restrict their use to recreation, wildlife, water supply, or aesthetic purposes.

Above Land Capability Classes are subdivided into major and secondary problems as follows:

Subclasses (the major problem):	erosion, wetness, soil limitation, climate limitation.
---------------------------------	---

Units (secondary problem):	Coarse underlying material, erosion hazard, drainage or overflow, slowly permeable subsoils, coarse textures, fine textures, salinity or alkali, stony or rocky, cemented layers or bedrock, low fertility or toxic elements, organic soils.
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VEGETATIVE SOIL GROUPS (See Map II)

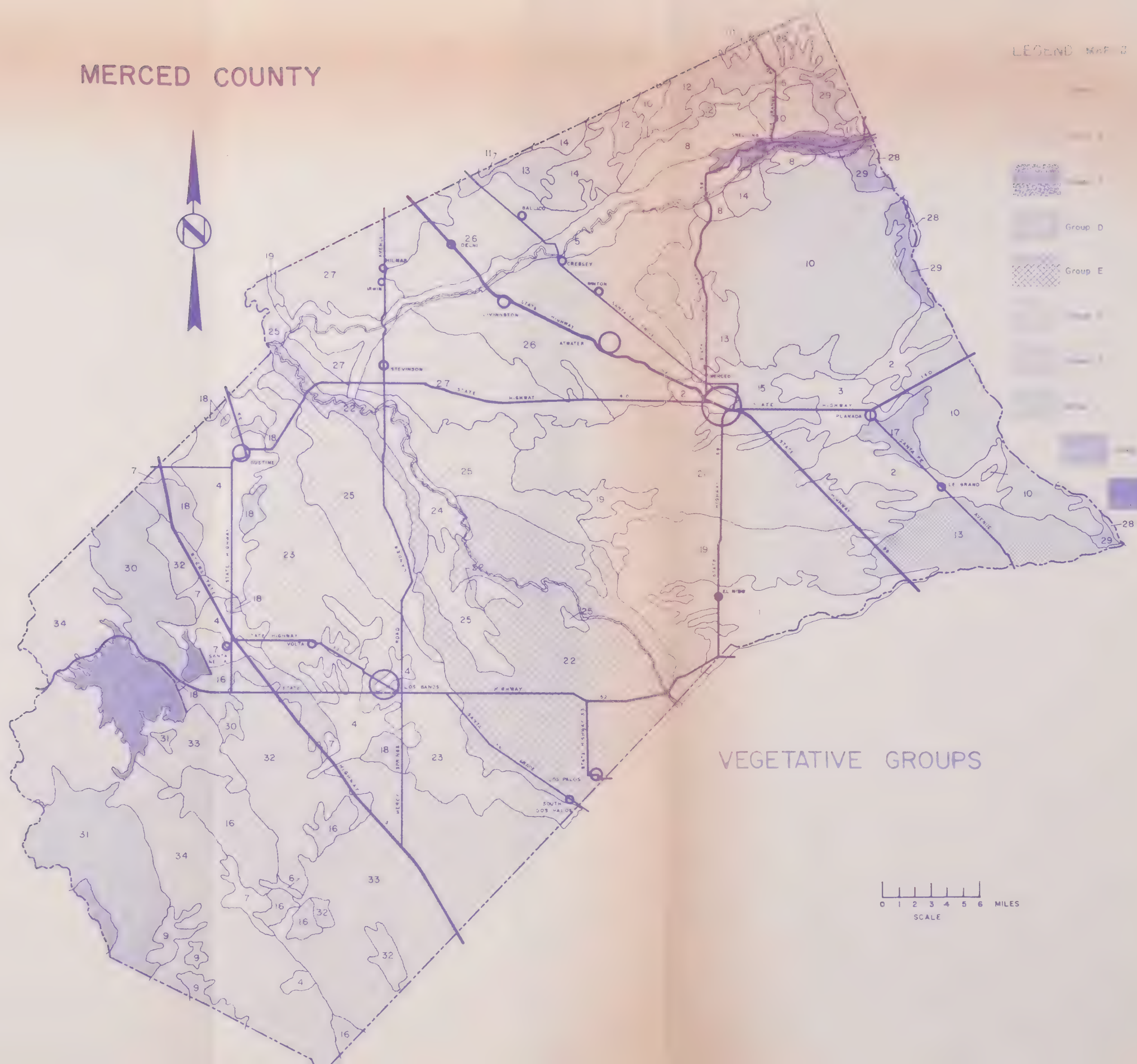
Group Description

- A. ALL CLIMATICALLY ADAPTED PLANTS SUITED. Soils are deep to very deep, moderately coarse to medium textured, moderately well to well drained, moderately rapidly to moderately slowly permeable. (Soils in this group can have slight wetness and slight salinity or alkalinity.)
- B. Choice of plants limited by DROUTHINESS and LOW FERTILITY LEVEL. Soils are coarse to gravelly medium textured, excessively drained, with less than five inches of available water-holding capacity in the root zone.
- C. Choice of plants limited by FINE TEXTURES. Soils are deep to very deep, moderately fine to fine textured, moderately well drained, moderately slowly to slowly permeable.
- D. Choice of plants limited by VERY SLOWLY PERMEABLE (CLAYPAN) SUBSOILS. Soils are moderately well drained, with slow or very slow subsoil permeability.
- E. Choice of plants limited by WETNESS. Soils are imperfectly to very poorly drained. (Drained soil phases will be placed in appropriate group according to their current drainage status. Slight salinity and/or alkalinity may be present.)
- F. Choice of plants limited by SALINITY OR ALKALINITY. Soils are moderately to strongly saline alkali, and usually unfractured dense material.

- G. Choice of plants limited by DEPTH. Soils are shallow to moderately deep, well drained, over hardpan, bedrock, or other unfractured dense material.
- H. Choice of plants limited by LOW pH. Soils are strongly to extremely acid; pH is less than 5.1.
- I. Choice of plants limited by TOXIC PROPERTIES. Soils are usually moderately to strongly serpentine.
- J. CHOICE OF PLANTS DEPENDS UPON ON-SITE INVESTIGATION. Soils include those in the miscellaneous non-arable category, such as riverwash, stony or rocky upland, etc.

MERCED COUNTY

LEGEND MAP 2



Group D
Group E

VEGETATIVE GROUPS

0 1 2 3 4 5 6 MILES
SCALE

HYDROLOGIC SOIL GROUPS (See Map III)

Definition and Scope:

Hydrologic soil groups are used for estimating the runoff potential of soils on watersheds. Four groups are used based on soil properties that influence runoff.

Assumptions:

Classification is at the end of long-duration storms occurring after prior wetting and opportunity for swelling, and without the protective effect of vegetation.

Criteria:

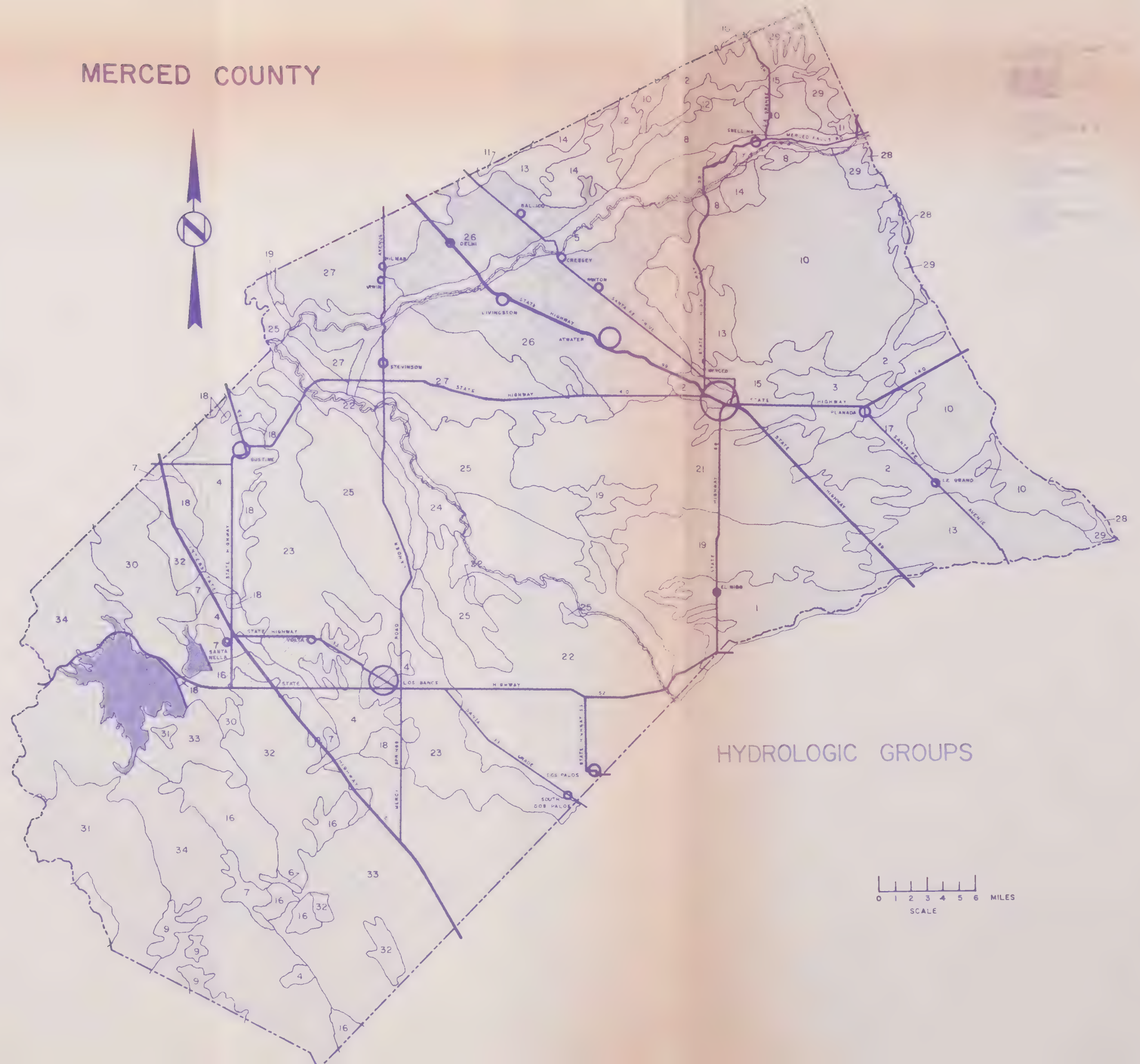
Group A - Soils having high infiltration rates even when thoroughly wetted, consisting chiefly of deep, well to excessively drained sands and/or gravel. These soils have a high rate of water transmission and would result in a low runoff potential.

Group B - Soils having moderate infiltration rates when thoroughly wetted, consisting chiefly of moderately deep to deep, moderately well to well drained soils with moderately coarse textures. These soils have a moderate rate of water transmission.

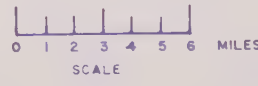
Group C - Soils having slow infiltration rates when thoroughly wetted, consisting chiefly of (1) soils with a layer that impedes the downward movement of water or (2) soils with moderately fine to fine texture and a slow infiltration rate. These soils have a slow rate of water transmission.

Group D - Soils having very slow infiltration rates when thoroughly wetted, consisting chiefly of (1) clay soils with a high swelling potential, (2) soils with a high permanent water table, (3) soils with claypan or clay layer at or near the surface, and (4) shallow soils over nearly impervious materials. These soils have a very slow rate of water transmission.

MERCED COUNTY



HYDROLOGIC GROUPS



2. Agriculture

The climate is one of the characteristics that has made Merced the rich agricultural, dairying, and stock-raising region it is. East of the San Joaquin River, the Merced Area, has a growing season of 256 days, and averages an annual rainfall of 12.35 inches. On the west side of the river, Los Banos area has 288 days of growing season, and the average rainfall is 8.67 inches.

The presence of extensive orchards and rich croplands in the County of Merced are a testimony to the importance of agriculture in the local economy. Merced County, which ranked ninth in the State in the value of farm products sold in 1969, had nearly 40% of its labor force employed in the production and processing of agricultural products in 1970. A long growing season, fertile soil, and high insolation have all combined to create an ideal climate for agriculture. The importance of agriculture, and the preservation of the soils capable of supporting it within the County, takes on an added dimension when viewed on a state and national scale. Nationally, the Central Valley ranks among the major food producing regions of the country, particularly in the production of fresh and canned fruits and vegetables. In 1969, California ranked first in the nation in the production of 46 commercial crops and

livestock commodities. Of these, ten are of significant local importance. These are: alfalfa seed, almonds, figs, grapes, lima beans, nectarines, peaches, tomatoes, walnuts and turkeys. Furthermore, in 1969, California accounted for 90 to 100% of total U. S. production of five of the crops: almonds, figs, grapes, walnuts, and nectarines. Statewide, the Central Valley is the major food producing area. "Most urbanization", according to a 1970 report by the University of California Extension, "has occurred in Southern California. As a result, citrus and walnut production in particular have been shifting to the San Joaquin Valley, which has become the heart of California's agriculture. In value of agricultural production six of the valley's eight counties were among the top ten in the state in 1969."

The acreage harvested during the year 1972 was 1,221,759 acres, and is broken up as follows:

Field Crops	1,124,478 acres	\$ 61,909,200
Seed Crops	5,022 acres	1,232,900
Vegetable Crops	29,707 acres	27,387,000
Fruit and Nut Crops	62,552 acres	24,578,170

The most important crops in each category being:

Field Crops:

Pasture, Hay, Barley, Corn, Cotton, Sugar Beets, Wheat,
Safflower, Rice, Rye, Oats, dry Beans.

Seed Crops:

Beans, Cantaloupe, Squash, Watermelon.

Vegetable Crops:

Tomatoes, Sweet Potatoes, Melons, Lima Beans, Peas, Peppers,
Lettuce, Asparagus, Onion, Cucumber.

Fruit and Nut Crops:

Almonds, Walnuts, Pecans, Peaches, Apricots, Figs, Prunes,
Plums, Nectarines, Olives, Berries, Pears.

Citrus fruit was a total loss in 1972 because of frost
damage.

Other valuable products in the County:

Livestock and Poultry:

Chicken, Turkeys, Pullets, Cattle & Calves, Sheep & Lambs,
Hogs & Pigs, Horses and Goats.

A total value of \$57,198,600 in 1972.

Livestock and Poultry Products:

Chicken eggs, Turkey eggs, Milk, Wool.

A total value of \$55,281,400 in 1972.

3. Minerals

Metals

Most of the known metallic mineral deposits are in the Sierra Nevada. Gold dredging operations in Merced County occurred mainly in the Snelling area. All gold mining ceased 1942 by government order. Then about 1945 that order was rescinded and mining was resumed, however, 1952 saw all dredging come to an end. The gold which was found in the Snelling-Merced Falls area was a valuable natural resource. The incentive for gold mining seems to have disappeared in many areas in California, for the expense to remove the gold from the earth became too high.

A look at Henderson Park shows what might be done with such depleted land.

Non-Metals

Gypsum is found west of San Joaquin River near Los Banos, and Sand and Gravel is mined in the same general area, as well as east of San Joaquin River near Snelling, Planada, Cressy, and Merced. Most of the sand and gravel is mined from stream beds and adjacent flood plain deposits. Old dredge tailings and reworked hydraulic mining debris are also sources of sand and gravel. It is used extensively in the construction business, roads and buildings.

Sand and gravel has been mined in the Merced area for over 50 years. This resource is usually taken for granted by most people who use it as an end product. When the product is delivered to a new development site, it represents the cheapest element of the building process. It is the most valuable mineral resource in Merced County. It results from years of mountain erosion and from seasonal storms that result in rapid stream movement as "gulley washers" come down from the mountain side. In 1968/69, the flood brought a new crop of sand and gravel with it, that was not generally within reach of the mining operators. This flood caused negligible damage to the local mining areas, and operations were disrupted until the water subsided and cleanup operations were completed.

Dams and reservoirs prevent new sand and gravel from being washed down into the valley, however, there is an ample supply in the County for many years to come.

Another non-metal mineral, underlying a portion of Merced County, is Diatomite, (Diatomaceous clay), which can be used as a filtration medium, a filler, lightweight aggregate, insulation, and pozzolan. However, no mining of this resource has been done yet.

Oil drilling has been attempted numerous times at various locations throughout the County, but with no apparent success. Indications are, that gas drilling may be more productive.

4. Vegetation

The native vegetation in Merced County has largely been replaced by introduced species, or eliminated by cultivation and grazing. The soils in the basin area generally contain soluble salts and alkali, and the natural cover is made up largely of salt-tolerant plants, i.e., saltgrass, which is pastured extensively and of great importance to the beef and dairy industry. Other grasses on the valley floor are wildrye, soft chess, alkali sacaton, spikeweed and foxtail. Also of considerable feed value are burclover and alfileria. In poorly drained areas rush, cattail and tule are found. Areas subject to annual floods are often carpeted with lippia. Where the content of soluble salts is greater, there are such salt-loving plants as samphire, alkaliweed, alkali mallow, alkali heath, and various saltbrushes. In general, slender oat predominates on the low foothills in the west of the County with alfileria, peppergrass and owlclover being some of the common herbs. Soft chess grows more abundantly on the higher slopes of the west. Shrubs and brush, mainly California sagebrush, are found on some of the steeper slopes, as well as areas of shallow soils in grassland areas. These are areas, especially the lower lying ones, used mainly for sheep grazing. Stands of trees, with intervening spaces of grasses and herbs, are found on the higher and steeper slopes of the

Diablo Range, and are mainly used for cattle grazing.

Blue oak is the principal tree. Other trees found in the western part of the County are the California buckeye, juniper sycamore, live oak, and white oak. Also, freemont cottonwood, interior live oak, and willow.

In the east, on the well-drained uplands and high terraces of the Sierra Nevada, which are used mainly for grain and range, the most common forage plant is alfileria. On the less fertile and sandier soils it is the dominant growth. Important range grasses are wild oats, soft chess, foxtail, ryegrass, oatgrass, and needlegrass.

The tree most often found in the eastern part of Merced County is the California white oak, common along the Merced River bottom land and channels of the lesser streams.

Other trees along the streams are Freemont cottonwood, Oregon ash, boxelder, and several kinds of willows. Some bushes and herbs are generally associated with the trees, the ripgut grass spreading abundantly under them. Most of the alluvial soils along the channels are cultivated, and the principal natural growth consists of weeds.

Weeds are a serious problem in some parts of the cultivated areas. Bermuda grass is good forage in pastures, but considered a pest elsewhere, especially in alfalfa fields.

Johnson grass is a serious nuisance, particularly along the

Merced River bottom land and on medium textured soils. Whole crops of tomatoes and cotton have been lost because of rank growth of this weed. Other troublesome species are star-thistle, puncturevine, sandbur, tumbleweed, morning-glory and camelthorn. Tule and cattail cause difficulty in rice paddies and along irrigation and drainage ditches. The Merced County Agricultural Commissioner is in charge of the weed control program, and should be consulted for help with weed problems.

5. Wildlife

In the recent past Merced County had an abundance of animals. However, during the past twenty years the picture for wildlife has faded, and consists very much of rodents and birds. Deer enter the Sierra foothills only occasionally, but are relatively abundant in the woodland grass- and brushcovered hilly and mountainous areas of the Coast Range. Restricted shooting privileges sold on a fee basis protect the livestock from careless hunters.

The coyote is common in many rural areas of the County. Some livestockmen and sportsmen feel that the coyote should be exterminated, as were the grizzly bear and the wolf. Biologists agree that individual animals, that are killing domestic stock or poultry, should be destroyed, but that

the species as a whole is not necessarily harmful, because so much of its diet is made up of destructive rodents. Coyotes can be hunted with a license throughout the year. Muskrat are abundant in the wetland areas; beavers build dams that interfere to a certain extent with drainage and irrigation along Merced River. However, beavers are protected by game laws.

Rodent population is heavy, especially in the eastern part of the Merced County. Ground squirrels, mice, rats, pocket gophers, rabbits, particularly jack rabbits, are a common pest. California ground-squirrels compete with livestock for forage and cause substantial losses to cereals and other crops. They are host to several diseases that are transmittable to humans, such as bubonic plague, tularemia, rocky mountain spotted fever, and relapsing fever.

The low, poorly drained flats and shallow alluvial basin areas of the valley support one of the most concentrated winter waterfowl habitats in the western United States. Swans, several species of geese, mallards, pintails, teals and other waterfowl, avocets, curlews, sandhill cranes and other rare and permanently protected species visit the area every year. They live in ricefields, irrigation and drainage ditches. Large lowlying areas west of San Joaquin

River, which are poorly drained and frequently saline and alkaline soils, are leased to gun clubs. These soils are otherwise used for pasture, but are flooded at intervals to provide shooting facilities; this also assists in leaching salts, and promotes growth of pasture grasses of importance to dairy- and cattlemen. As an aid in maintaining a plentiful wildfowl supply, the California Fish and Game Commission maintains thousands of acres as game refuge.

Quails, doves, and pheasants are resident game birds. They are hunted extensively in season, but are protected most of the year.

Merced County was among the ten leading Counties in the State in 1963 in Game Bag for the following species:

# 1 in State in Ducks	with 16.7% of State total
# 3 in State in Jackrabbits	with 6.9% of State total
# 4 in State in Geese	with 8.8% of State total
# 8 in State in Doves	with 3.8% of State total
# 8 in State in Pheasants	with 5.3% of State total

WILDLIFE-VEGETATION ASSOCIATIONS

A system of classifying vegetation in California by Herbert A. Jensen is used as the basis for delineation of each habitat type as follows:

Riparian Habitat

Stream and slough borders, usually tree lined: typical species: willow and cottonwood.

Wetland Habitat

Permanent Marsh - Year-round water, shallow, vegetated.

Seasonal Marsh - Dries up in most years; natural drainage basins and flats, also duck clubs.

Lakes and Reservoir Habitat

Relatively deep, open fresh water areas, may have narrow borders of vegetation.

Grassland

An open grass range, trees and shrubs sparse to absent.

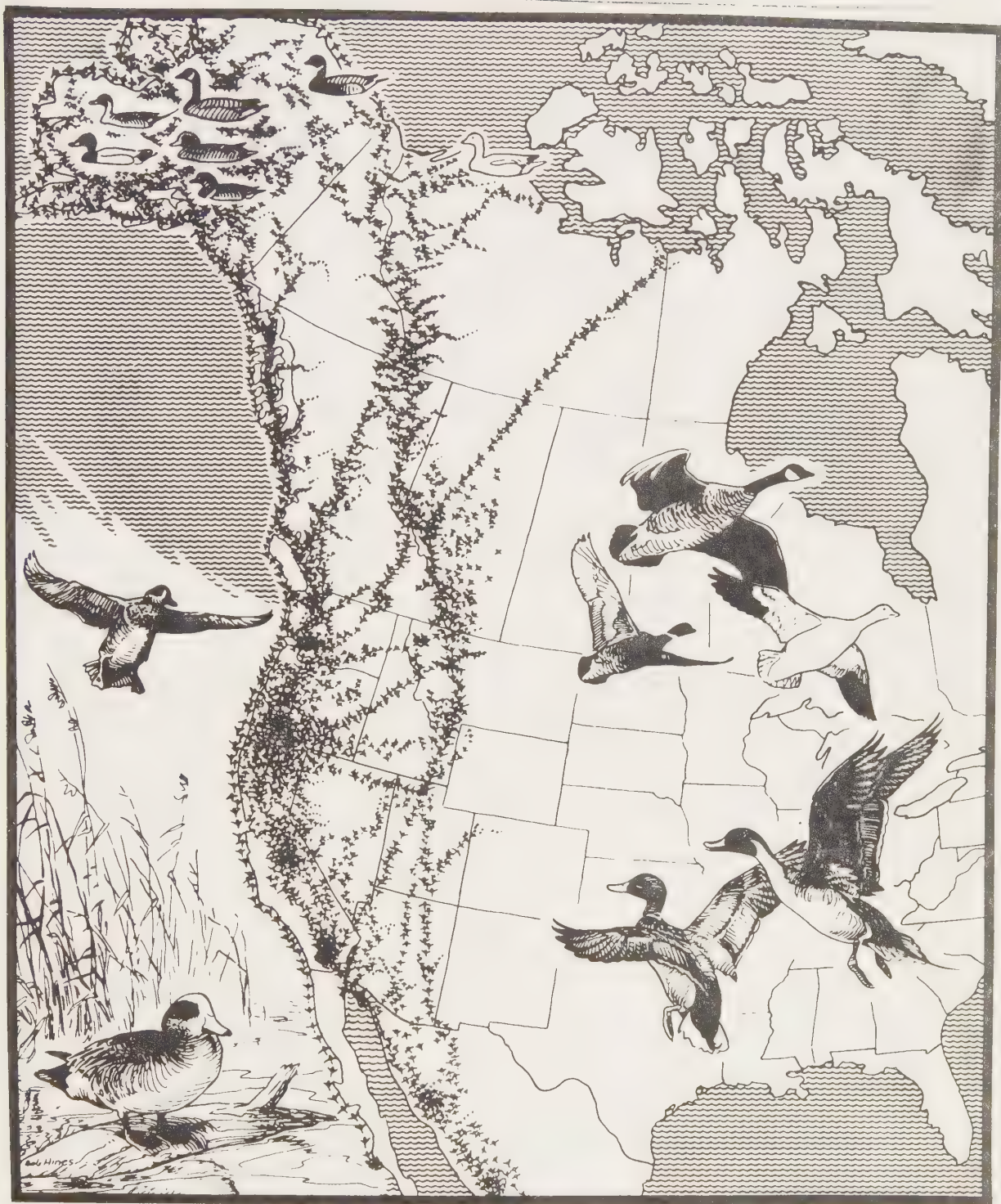
Agricultural Lands Habitat

Field crops including irrigated pasture, cereal crops, rice, cotton, alfalfa and sugar beets; vegetable crops, deciduous orchards, grapes, and miscellaneous.

AREAS OF CRITICAL HABITAT

Major habitat types are listed below in their sequence of importance to wildlife. Each habitat-type is also assigned the status of critical or non-critical. However, all habitat types listed are used by wildlife and as such have importance in their preservation.

<u>HABITAT TYPE</u>	<u>STATUS</u>
A. Riparian (stream & slough borders)	Critical (primary)
B. Wetland (permanent & seasonal marsh)	Critical (primary)
C. Lakes & Reservoirs (water & vegetative)	Critical (primary)
D. Grassland (open grass range)	Non-Critical (secondary)
E. Agricultural (field crops & orchards)	Non-Critical (secondary)
F. Urban-Industrial	Non-Critical (secondary)



Pacific Flyway - Principal Fall Migration Routes

Rare & Endangered species in the County of Merced are:

- | | |
|------------------------|--------------------------------|
| 1. San Joaquin Kit Fox | 4. Southern Bald Eagle |
| 2. Giant Garter Snake | 5. American Peregrine Falcon |
| 3. California Condor | 6. Blunt-nosed Leopard Lizzard |

SUPPORTING DATA

Land Classification Survey to determine land use changes affecting habitat types used by wildlife are shown below.

<u>Habitat Type</u>	<u>Acreage</u>	<u>Acreage</u>	<u>Acreage</u> <u>Losses</u>	<u>Acreage</u> <u>Gains</u>
Woodland Chaparral	41,000	41,000		
Woodland-Grass	60,000	59,000	1,000	
Buckwheat-Grass	22,000	21,600	400	
Grassland	616,403	581,123	35,280	
Agricultural	402,597	423,822	6,265	27,490
Urban-Industrial	20,000	22,565		2,565
Lake & Reservoir	1,000	15,900		14,900
Permanent Marsh	12,000	12,000		
Seasonal Marsh	84,000	83,400	510	
Riparian	<u>10,120</u>	<u>8,620</u>	<u>1,500</u>	<u> </u>
Totals	1,269,120	1,269,120	44,945	44,945

During the three year period following the last survey conducted in 1969 by the Department of Fish and Game, land use changes continued to show an acreage loss mainly in the Grassland category with a shift to the agricultural category. However, additional acreage is lost from agricultural,

grassland, and seasonal marsh and shifted to urban-industrial.

In general, these observations are supported by the above survey, reflecting land use changes that are detrimental to wildlife, especially in land classification riparian and seasonal marsh.

6. Fish Resources

During the next ten years, popularity in sport fishing is expected to increase more rapidly than the human population, while the fishing habitat in streams is expected to decrease. The main reasons for the decrease is diversion of water, blockage by dams, and water pollution from irrigation. If adequate facilities, access, stocking and management are provided, standing waters like lakes and reservoirs will satisfy the demand. Fish habitat in the County of Merced is listed in the following summary: (figures available only for 1965)

<u>Habitat type</u>	<u>Mile of Stream</u>	<u>Number of Waters</u>	<u>Acres</u>	<u>Potential Pounds Game Fish Produced</u>
Combination Reservoirs		2	540	
Warmwater Streams	209.0			28,300
Warmwater Canals	150.5			24,300
Warmwater Lakes		4	165	7,500
Warmwater Reservoirs		1	50	5,000
Intermittent Reservoirs		1	670	
Total:	359.5	8	1,425	65,100

The most common fish in the County of Merced are Salmon, Striped and Black Bass, Catfish, Trout, Crappie, American Shad, Steelhead, Sunfish, and Carp. The carp is a big problem; it preys on the young of game fish and belongs to a group known as "rough fish".

Anadromous habitat is found in the Merced River. This is for fish that spend a part of their life cycle in salt water and migrate into fresh water streams to spawn. Merced River contains approximately 62 miles of anadromous habitat. The upper 25 miles are spawning areas, the lower section is used for transportation only.

44 miles of San Joaquin River are used by King Salmon, up to the confluence with Merced River, but only 11% of that distance is accessible to anglers because of private ownership of lands. There is no salmon spawning area in San Joaquin River, it is used only for immigration of adult fish and emigration of the juveniles.

III. WATER RESOURCES

A. Introduction

The San Joaquin River is the principal stream in the County of Merced. Originating in glacial lakes in the Sierra Nevada, it flows southwesterly to the vicinity of Mendota, thence northwesterly to Saisun Bay. The principal tributaries to San Joaquin River in our County and surrounding area are the Stanislaus, Tuolumne, and Merced Rivers. A number of minor tributaries originating on the eastern slopes of the coastal ranges join San Joaquin River from the west.

B. Inventory

1. Surface Water

Average annual precipitation in the San Joaquin Valley varies from about five inches on the valley floor to over 70 inches in the Sierra Nevada Range. The mean annual run-off ranges from about 40 inches at the higher altitudes in the Sierra Nevada to less than 1/2 inch in the valley. The streams draining areas of high altitudes in the Sierra Nevada have most of their run-off as snow-melt during spring and early summer, and almost 60% of the run-off generally occurs during the months of April through June. The streams draining the Coast Ranges and the foothills of the Sierra have most of their run-off immediately following the storms of winter and early spring, with the result that about 90% of the run-off occurs

in the months December through April.

The water quality is generally good, and the water of the major streams, the Merced, Tuolumne, and Stanislaus Rivers are of excellent quality when entering the valley. Because of extensive return flows, minor salinity increases occur in the Merced and Stanislaus Rivers, and greater increases in the Tuolumne River, immediately above their junctions with the San Joaquin River. Other streams, originating at lower elevations, are generally of good quality, but frequently more saline than the major streams. West of the San Joaquin River very little water is available from surface streams originating in the Coast Ranges.

2. Groundwater

Groundwater quality follows the trend similar to that of surface waters. It is of good quality in higher valley areas, and of decreasing quality toward the valley trough. In a few localities the groundwater is affected by intrusions of deep confined saline water.

Groundwater is stored in "aquifer", a water-bearing stratum of rock, sand, or gravel below ground. A single integrated aquifer system, referred to as the San Joaquin - Tulare Valley storage basin, underlies the central valley. All usable groundwater for the County of Merced occurs in the alluvium-filled San Joaquin Valley.

A bed of diatomaceous clay, generally known as the Corcoran clay, forms an impermeable body, which confines the lower groundwater zone in most of the valley. This clay divides the upper water-bearing zone from the lower zone, allows significant differences in water quality to develop, and prevents direct percolation of applied water to the lower water-bearing zone over most of the valley. Statistics for the County of Merced could not be obtained and all figures given are for the whole San Joaquin - Tulare ground basin, a total of 13,500 square miles: the water-bearing deposits are as much as 3,500 feet thick. The maximum measured depth to water in the valley is 842 feet, the minimum measured depth 2 feet. Total storage capacity of the San Joaquin Valley at a depth of 200 feet below ground surface is 93,000,000 acre-feet, of which 80,000,000 acre-feet is considered usable. Low permeability in some areas is considered a limiting factor in utilization of the water. The predominant water type varies with location in the aquifer, but calcium, magnesium, sodium bicarbonate, sulfate, and chloride are all present in significant quantities. A network of observation wells to obtain water levels and chemical quality information in each of the principal aquifers of a region is only one element of the basic data needed for a groundwater appraisal. Also needed are a geologic

reconnaissance to determine the areal extent of the groundwater basin, and a canvass of existing wells. Safe groundwater yield for our region is estimated to be 1.75 million acre-feet per year, an annual overdraft of approximately 50,000 acre-feet exists.

Recharge

Replenishment of the groundwater bodies happens mainly by percolation of surface water through permeable material in the riverbeds. Besides streams, the only known recharge area in the County of Merced is around the town of El Nido east of the San Joaquin River.

RESERVOIRS

Existing Reservoirs inside the County of Merced:

<u>Name</u>	<u>Size: Acres</u>	<u>Capacity: Acre-Feet</u>
San Luis Reservoir	13,800	2,100,000
O'Neill Forebay Reservoir	2,000	57,000
Los Banos Creek Reservoir		34,500
Burns Reservoir	4,200	30,000 *

Proposed Reservoirs inside the County of Merced:

Montgomery Reservoir		
Castle Reservoir	1,100	11,500
Marguerite Reservoir	1,900	13,000
Haystack Mountain Reservoir	650	3,000

Reservoirs outside the County of Merced, controlling our streams

Lake McClure Reservoir	7,109	1,024,600
Lake McSwain Reservoir	308	9,730
Bear Creek Reservoir	670	14,400 *
Owens Creek Reservoir	320	4,800 *
Mariposa Creek Reservoir	2,500	50,000 *

* figures give proposed enlargement

3. Irrigation

Prior to the advent of widespread irrigation, the development of transportation had made non-irrigated grain farming very profitable, until continuous cropping resulted in reduced yields. Irrigation developed slowly prior to 1870, but accelerated rapidly after that time.

In general, since suitable land is more easily available than water to irrigate it, irrigation in the California region has been progressing through three stages: (1) direct diversion from the rivers, (2) storage supplementing natural flow on an individual stream for use within the same basin, and (3) storage and transport of waters from stream basins having a surplus to those having a deficiency. In the San Joaquin Valley the exploitation of groundwater storage, made possible by the development of electrical pumps about 1900, postponed the need for surface storage or for imported water for many years. In

the 1920's many irrigation reservoirs were built to regulate local streamflows for use in the same basin. Irrigation on the east side of San Joaquin River is supplied mainly by diversion of the San Joaquin River. At Mendota Pool, west of San Joaquin River, water imported from the Delta via the Delta-Mendota Canal is diverted into the Central California Irrigation District service area. This water, which is furnished by the Central Valley Project in exchange for San Joaquin River water diverted into the Friant-Kern and Madera Canals, does not exceed certain salt concentrations under the terms of the exchange agreement. The San Joaquin River, as it flows northward, consists largely of return flows. These flows from the west side, carrying subsurface drainage and surface run-off from the saline lands of the lower alluvial fans and basin rim soils, are relatively saline. In the lower San Joaquin River salinity has increased greatly over the past 20 years. Several irrigation districts have purchased supplemental water from the Central Valley Project, to mix with and improve the quality of the river water. Corrective measures to protect the quality of water can be accomplished by controlled releases from east side conservation projects, and by provision for a permanent drainage outlet for unusable waters. That way the return flows and accretions of poor quality water would be kept

from entering the San Joaquin River. In a few areas the relatively high ground water salt concentrations, together with the relatively high concentrations of sodium and bicarbonate, could produce problems in sensitive crops; however, the mixing of surface and ground-water supplies, the use of calcium amendments, and choice of crops adapted to these conditions, no significant problems should occur.

Sodium

Sodium, when present in the soil, is toxic to many fruits. Much of the water percolating through granitic materials of the Sierra Nevada contains relatively high proportions of sodium, which is suitable for general crops, but unsuitable for fruit.

Boron

Boron, up to the concentration of nearly 0.5 milligrams per liter, is an essential micronutrient in irrigation water; however, damage to sensitive crops such as citrus has been reported from concentrations of 0.5 to 1 mg per liter, and concentrations of more than 4 mg/l are generally considered unusable for all crops. This is of greatest concern in the production of fruits.

Leaching

In soils affected by saline or sodic conditions, leaching is necessary to achieve productivity. In all soils, sufficient leaching is needed to achieve salt balance at concentrations compatible with the crops grown.

Various formulas for leaching requirements have been developed for total dissolved solids, and methods have been proposed for estimating leaching requirements for sodium, chlorides, and sulfate. Leaching requirements for boron are less readily determined. In all methods, soil conditions, crop requirements, and irrigation practice must be considered. Where there is little rainfall and the higher salt content water is utilized, large applications of water are necessary to meet the leaching requirements of crops such as citrus fruits and most vegetables.

The County of Merced is being served by 5 irrigation districts and a 6th is being formed.

1. Central California Irrigation District
2. El Nido Irrigation District
3. Merced Irrigation District
4. Plainsburg Irrigation District
5. Turlock Irrigation District existing
- and
6. Stevinson Irrigation District being formed

4. Drainage

The drainage requirements are closely related to the projected irrigation demands.

Subsurface drainage creates problems in many areas of the County of Merced due to high water tables, irrigated lands contributing to these problems with their surface runoff. Most of these problem areas are located in the lower alluvial fans west of the San Joaquin River on irrigated lands of the Delta-Mendota service area, and in Grasslands. The grassland area is flood-irrigated for pasture and water fowl. While other minor problem areas are scattered throughout the east side of the San Joaquin Valley and require corrective drainage, most of the area has achieved drainage control through groundwater pumping. Drainage effluent from the west side is being discharged into the San Joaquin River, but due to increased water quality restrictions it is anticipated that other outlet facilities will be needed in the future.

5. Watersheds

Watershed is defined as all lands enclosed by a continuous hydrolic drainage divide and lying upslope from a specified point on a stream. Watershed management is the analysis, protection, development, operation or maintenance of the land, vegetation and water resources of a drainage basin

for the conservation of all its resources for the benefit of man and other living creatures. Watershed management for water production is concerned with the quality, quantity and timing of the water which is produced.

Upstream watershed protection projects generally are not large or expensive, but are designed to provide flood and sediment prevention by land treatment, structural, and management measures. They slow down or impound waters in the upstream watershed, to prevent excessive and rapid runoff or flooding.

Typical measures to improve production and decrease damage include: reservoirs, proper grazing use, timber management, brush control, cropping use, fertilization, debris basins, fire prevention and suppression, revegetation to grass, shrubs or trees, grassed waterway or outlets.

Damage from wildfire include destruction of valuable timber, crops, grassland, losses of homes and other improvements, as well as increased erosion and sediment from burnt-over areas. Wild fire reduction programs include education of the public, maintenance of effective fire-fighting forces, and construction of fire fuel breaks.

Erosion is the dislodgement of surface material by running

water and wind, causing the loss of soil and land productivity, and damage to public facilities and farms. Sedimentation is the subsequent disposition of eroded material, and can occur in flood plains, stream channels, reservoirs, urban areas, and watersheds.

Proper use of land and related resources is important to minimize erosion and sediment yield. Land treatment measures are aimed at holding the soil in place, including reduction of rainfall impact and runoff, and increasing the resistance of the soil to erosion through improved vegetation cover. Structural measures retard erosion at the site, and provide a trap for sediment moving into an area from upstream.

Watershed projects planned in the County of Merced include "Mustang Creek Watershed" in the northern portion of the County with the larger area located in Stanislaus County. Other projects are planned for the area north of Bear Creek, from San Joaquin River in the west to east of the City of Merced, then widening and including the watershed areas of Black Rascal, Burns and Bear Creek to Lake McClure in Mariposa County. A third watershed project planned is located north of Merced River, from the Mariposa/Merced County line in the east to approximately Freeway 99 in the west.

IV. OPEN SPACE

A. Introduction

Generally, more leisure time is available to the present day population than was available ten years ago, and it is safe to assume that ten years hence will produce even more leisure time. The demand for land in which society may "stretch its legs" will become greater than the available local supply. But why limit ourselves to ten years hence? As trustees of the environment for future generations, it is incumbent that proper use and conservation of all resources be foremost in the minds of today's planners, elected officials and the using public. Once urbanization has taken place in any area, the economic feasibility of reverting back to open space is lost forever.

The need for open space is based on the desire of the community. The existing community, as "protectors" for future generations, should not only look within, but beyond its present geographical boundaries and concern itself that a proper balance of open space and humanity exists.

Open Space has been defined by UCI Special Project 21 "as rural and urban landscape used to maximum natural and spatial values".

It is ironic that the state of research in determining the proper zoo environment for animals, birds, fish, and reptiles is far more advanced than studies made of the human animal in relation to his urban surroundings.

The greatest physical and economic obstacle to the preservation of

open space is its desirability and suitability for urbanization. As the tax burden upon property owners increases year by year, open space land will be forced into a "higher and better use" - - therefore, urbanization.

The uses of open spaces have recreational, social, economic, ecological, scenic, educational, and psychological value. These values are intricately interwoven into the economic, social, and environmental fabric of the County in a way which makes their wise use and preservation of paramount importance to the well-being of valley residents. The permanence of open space is not guaranteed, however, its protection will require a substantial commitment of public resources and the use of various environmental management techniques.

B. Requirements

By adopting Chapter 1590 at its 1970 Session of the California Legislature added Article 10.5 Open Space Lands to the Government Code of California beginning with Section 65560. Section 65561 clearly states the legislative intent:

"The Legislature finds and declares as follows:

"(a) That the preservation of open space land, as defined in this article, is necessary not only for the maintenance of the economy of the state, but also for the assurance of the continued availability of land for the production of food and fiber, for the enjoyment of scenic beauty, for recreation

and for the use of natural resources".

"(b) That the discouraging premature and unnecessary conversion of open space land to urban uses is a matter of public interest and will be of benefit to urban dwellers because it will discourage noncontiguous development patterns which unnecessarily increase the costs of community services to community residents."

"(c) That the anticipated increase in the population of the state demands that cities, counties, and the state, at the earliest possible date, make definite plans for the preservation of valuable open-space land and take positive action to carry out such plans by the adoption and strict administration of laws, ordinances, rules and regulations as authorized by this chapter or by other appropriate methods."

"(d) That in order to assure that the interests of all its people are met in the orderly growth and development of the state and the preservation and conservation of its resources, it is necessary to provide for the development by the state, regional agencies, counties and cities, including charter cities, of statewide coordinated plans for the conservation and preservation of open space-lands."

"(e) That for these reasons this article is necessary for the promotion of the general welfare and for the protection of the public interest in open space land."

C. Open Space Zoning

Being a part of the County General Plan, the Open Space Element is made effective by the County Zoning Ordinance. Because this is a new development in California law, the basic zoning ordinance now in effect does not include open space enforcement regulations.

In order to make certain that such regulations will be available, the Legislature adopted Section 65910 which reads:

"Every city or county by January 1, 1973, shall adopt an open space zoning ordinance consistent with a local open space plan adopted pursuant to Article 10.5 (commencing with Section 65560) of Chapter 3 of this title." Effective date changed to Dec. 31, 1973.

The legislation provides for the granting of variances from the terms of the open space zoning ordinance, although it is clear from a reading of the text of the law that such variances are not to be granted unless certain rather restrictive guidelines are followed. The final paragraph of this section reads:

"This section shall be literally and strictly interpreted and enforced so as to protect the interest of the public in the orderly growth and development of the cities and counties and in the preservation and conservation of open space lands." However, this section is not to be construed to allow the taking of private property without just compensation.

Section 65912 reads:

"The Legislature hereby finds and declares that this article is not intended, and shall not be construed, as authorizing the city or the county to exercise its powers to adopt, amend or repeal an open space zoning ordinance in a manner which will take or damage private property for public use without the payment of just compensation therefor. This section is not intended to increase or decrease the rights of any owner of property under the constitution of the State of California or of the United States."

D. Intent

The intent of this element is to:

1. Provide ample outdoor recreation opportunities.
2. Conserve natural resources, scenic beauty and agriculture, and other land and water resources whose retention is necessary for the continued maintenance of the quality of the environment and prosperity of the community.
3. Shape and guide development in order to achieve efficient growth and maintain community scale and identity; and
4. Prevent incompatible development of areas which should be preserved for scenic, historic, conservation and public safety purposes.

This element proposes goals and policies, establishes basic logic and procedures for the future completion of more detailed and specific tasks, suggests standards and criteria to be developed,

and recommends that certain types of open space and conservation land be protected and preserved (not necessarily by government ownership), and recommends methods to achieve the further development and continued implementation of the open space and conservation elements of the general plan.

E. Goals

1. Broad Goals of the Open Space Element

National Resources Management

- to preserve an open space system which is related to the rural and urban needs and to the natural resources of the cities and County.
- to preserve valuable resources production areas including prime agricultural areas.

2. Recreation and Culture

- to assure a full range of recreation facilities and programs which are accessible to all citizens of all economic circumstance.
- to protect and develop those natural resources which provide important recreational use.
- to continue to expand the cultural facilities of the County making them more accessible to culturally disadvantaged segments of the population.

F. Specific Goals and Objectives

Goal: To achieve a balanced distribution of open space throughout the region which meets the needs of inhabitants for recreation, food, fiber, and amenities; and which will prevent some

of the adverse effects of urban sprawl and other forms of inappropriate development.

1. General Policies

- a. Preserve the physical characteristics of the County including riverbeds, canyons, mountains, and hilly areas.

Corollary 1. Control development within areas designated as "Open Space" so that indiscriminate or inappropriate development will not occur.

Corollary 2. Control exploitation of natural resources within areas designated as "Open Space".

"Natural Resources include soil, water, vegetation, air, wildlife, and mineral resources."

- b. Promote Open Space within the urban areas to provide contrast and relief from the forces and effects of the urban environment. These open space buffers are exemplified by the flood plains.

Corollary 1. Acquire areas which will provide open space especially in those areas subject to flooding, fire hazard, earth slippage and other natural hazards normally found in hilly land and flood plains.

Corollary 2. Where acquisition is not possible, hilly land should be developed in a manner which will insure retention of the natural open

space effect. This can be accomplished to some extent through zoning, grading, and subdivision controls.

Corollary 3. Encourage compatible multiple use of areas set aside for open space buffers. This could include recreation, water storage recharge areas, flood control areas, nature preserves and other similar uses.

Corollary 4. Encourage planning and programming of recreational and other open space uses in order to make the best use of sanitary land fill areas.

c. Encourage preservation of productive agricultural land not only for its value in providing food and fiber but also as open space relief from urbanization.

Corollary 1. Encourage policies and programs which implement the concept of confining urbanization to established centers rather than scattered development which destroys agriculture.

Corollary 2. Support measures to place productive agricultural land in some form of preserve or reserve either permanently or until the area is ready for urbanization.

- d. Urban parks - promote development of neighborhood and community parks and recreation facilities especially in areas where needs are the greatest.
Corollary 1. Plan and program for the purchase and development of parks and recreation facilities and request state and federal funding for this purpose.
- e. Promote coordination and integration of open space and urban development policies especially those policies directed at bringing about desired urban growth.
Corollary 1. Use open space as a tool to influence the timing and form of development.
Corollary 2. Discourage extension of inappropriate urban services such as highways, freeways, and trunkline water and sewer facilities into extensive open space areas that should remain open.
Corollary 3. Promote means of maintaining open space buffers around urban hazard and noise generating activities such as airports.
- f. Special site of regional significance - Preserve and protect historic, scenic, geological and archaeological sites within the County. Every effort should be made to safeguard and perpetuate invaluable relics of the

past for the enjoyment and education of present and future generations.

2. Organization and Procedural Policies

- a. Establish a continuing open space planning and acquisition program for the County. The key to this process lies in the development and implementation of the program and obtaining state and federal funding assistance to coincide with local objectives.
- b. Improve the process for updating open space plans and programs and strengthen participation by citizens, elected officials and technicians.

G. Open Space System

Open Space functional types found within the County are inventoried and discussed in Section VIII. Utilizing the Functional Compatibility Matrix (following), it becomes clear that open space land in many cases is multi-functional and creates areas of conflict. Open Space as a functional system cannot reach its optimum until a synthesis of uses are established through a coordinated effort by responsible agencies, as discussed later in this Section. Local government through its police power is constitutionally enabled to determine the use of the land. It may control land development in terms of short term benefits offered. Land use policies and ordinances, habitually using resource information (EQA's - EIR's) as part of the basis for recommendation or

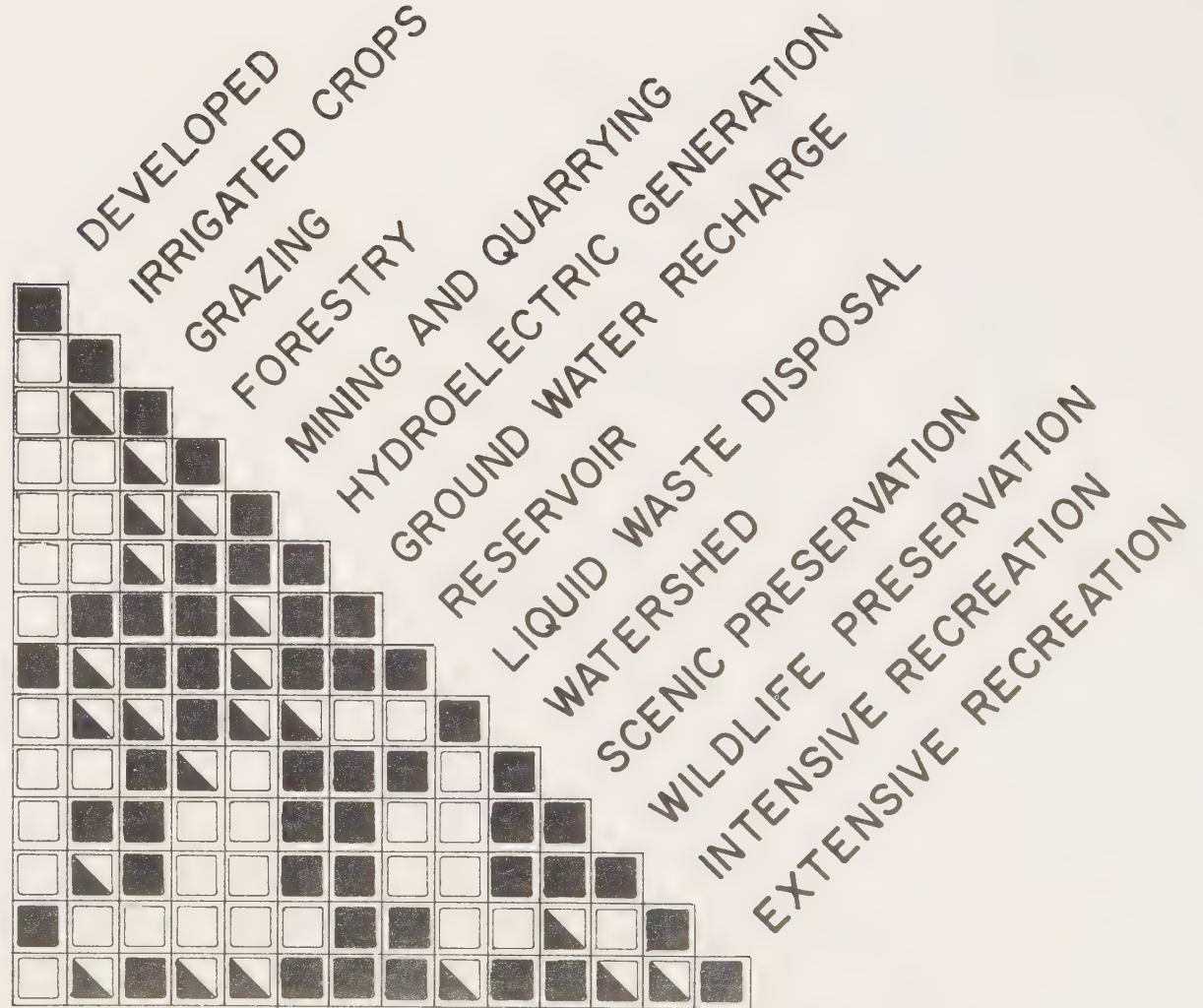
denial of a project, should achieve a balanced and enlightened use of the land. The preservation of open space, as a functional concept when properly employed, offers the best chance to alter past and present trends to achieve a more effective utilization of land and water. By preserving open space, the continued use of land for agriculture, controlled extractions of minerals, watershed, wildlife and recreation, can be assured. Future urban expansion or location of communities can be guided in physically and socially desirable ways.

Failure to devise effective land use regulations for conservation of land and open space results in loss to primary and secondary agricultural land, and once this happens, it is virtually impossible to go back. Once a parcel has been split, how does one reassemble such a split?

FUNCTIONAL COMPATIBILITY

 HIGH
 MEDIUM
 LOW

DEVELOPED
IRRIGATED CROPS
GRAZING
FORESTRY
MINING AND QUARRYING
HYDROELECTRIC GENERATION
GROUND WATER RECHARGE
RESERVOIR
LIQUID WASTE DISPOSAL
WATERSHED
SCENIC PRESERVATION
WILDLIFE PRESERVATION
INTENSIVE RECREATION
EXTENSIVE RECREATION



H. Responsibility for Implementation

Roles of Various Levels of Government

1. The Federal Government

- a. The federal government has responsibility for the preservation and development of the park and recreation resources of areas that have nationwide natural or historical values, regardless of their location.
- b. The federal government has responsibility to acquire, develop and maintain park and recreation resource areas which have scenic, scientific, historic or special recreation resource values of significance to the entire nation. Federal agencies responsible for multiple-use management of federal lands should integrate park and recreation resource land use, wherever feasible with other federal, state and local government land uses. In all federal land use planning for management, withdrawal or disposal of federally designated park and recreation resource areas and general multi-use lands, the state, regional organizations and local governments should be consulted and invited to participate, from the earliest stages of investigations.

2. The State Government

- a. The State of California has its primary area of responsibility and the acquisition, development, maintenance, and conservation of park and recreation facilities and programs

which have both resource and participant values and interests that are of state-wide significance.

- b. The State should support the general governmental concept that a program or service should be performed by that general purpose unit of government closest to its users consistent with the responsibilities and capabilities of that unit to provide it.
- c. In this context, the State should support and authorize legislation which will give County and other local governmental agencies sufficient authority to provide a planned program of day use park and recreation facilities. The State should also provide technical assistance to local governments in planning and implementing the development of recreational resources. Further, when the character of state-operated park and recreation facilities changes to use largely by residents of a given region or urban area, the State should give consideration to offering such areas to the local government agency within the region that is most effectively able to finance and provide park and recreation service needed.
- d. The State should recognize that in urban metropolitan areas, day use requirements become paramount and population expansion limits the availability of resources of state-wide park significance. The State should, therefore, support

and develop grant-in-aid programs as incentives for local government financing to assure provision of increased day use facilities in such urban areas. These grant-in-aid programs should be administered under specific formulae which recognize the use and need factors generated by population concentrations.

- e. The State of California should consult formally with all governments involved, from the inception of the State's planning process, before deciding to acquire or withdraw from the tax rolls areas for State park and recreation programs.

3. County of Merced

- a. The County of Merced has the responsibility to acquire, develop, maintain and administer a park and recreation facilities program that will serve the needs of a population broader than that of the local neighborhood or municipality, but less than state-wide or national in scope. When such need transcends County boundaries, voluntary inter-county cooperative agreement to plan and implement such programs are strongly recommended.
- b. The County of Merced should encourage through planning, consultation and other services as may be requested by local agencies, the provision of neighborhood and community park and recreation facilities where these needs

are unsatisfied and correspondingly recommend the means of financing such projects by the areas to be served.

- c. The County of Merced should be the primary supplier of park and recreation facilities and areas within the County, when such resource development is intended for use throughout the County.
- d. When the character of a County park becomes that of a neighborhood or community park by use of activity, the County should give consideration to offering such park, or portion thereof so used, to the agency of local government within which such park is located to administer and maintain.
- e. The County of Merced in accepting the responsibilities for implementing and developing their park and recreation resource for leisure, should create a plan of park recreation and open space areas and facilities, as an element of their general plan , cooperatively with all units of government, to meet the need. Counties have the responsibility to take necessary action to assure that . appropriate elements of the general plan are adopted as integral parts of city, regional, state, federal, and other governmental agency plans.

4. Special Districts

- a. Special districts have many and diverse responsibilities and vary markedly in authority, size, scope, and organizational structure. For the purposes of this statement the following categories of district are recognized:
- 1) Single purpose districts having responsibility for developing park, recreation, and open space resources, and providing recreation programs at the local neighborhood and community level.
 - 2) Special Districts controlling, either on a level with or incidentally to, other primary responsibilities, park, recreation and open space resources of significance locally or to the region and who have the authority and responsibility to develop them.
 - 3) Special Districts controlling incidentally to their primary responsibilities, park, recreation and open space resources of significance locally and to the region yet who have no authority to develop them.
 - 4) Special Districts controlling no park, recreation or regional significance. This classification, including fire protection, sewage and other special purpose districts, is included in recognition of the minimal involvement of many districts with park, recreation and open space resources.

- b. Single and multi-purpose special districts having a prime responsibility for developing park, recreation and open space resources and providing recreation programs at the local neighborhood and community level are analogous to cities in performing this function and should assume similar roles in carrying out their responsibilities within their area of jurisdiction.
- c. All special districts have the responsibility to cooperate with state, federal, regional agencies, cities and counties in the interest of the public in conserving and where appropriate, maximizing the accessibility, development and utilization of park recreation and open space resources consistent with their primary area of responsibility.
- d. This County recognizes that planning for and developing park, recreation and open space resources of regional significance is primarily a responsibility of general purpose government within the roles described in this statement and encourages these levels of government to seek out and enter into appropriate conservation, development and operating agreements with special districts having control over resources, particularly those controlling significant park, recreation and open space resources who have no authority themselves to develop or conserve them.

e. Special Districts controlling, either on a level of equal importance or incidentally to their primary responsibility, park, recreation and open space resources and who have the authority and responsibility to develop them, are encouraged to prepare multi-use plans, including a parks and recreation resource element, and to coordinate these plans with the efforts of state, federal, regional agencies, cities and counties. The latter are encouraged to enter with these special districts implementing multi-use plans at their appropriate level of responsibility. Projects in this field may range from developing the recreation potential of water projects to the joint use of school grounds and the development of joint use school-park sites.

5. Cities

- a. Cities should recognize and emphasize their primary responsibilities as being the provider of local recreation to serve their communities.
- b. Cities have the responsibility to plan and develop facilities and programs to meet the needs of their citizens for: cultural and social resources, athletic and sport arenas, open space and beautification.
- c. Cities in accepting their responsibilities for implementing and developing their park and recreation resources for leisure should create a plan of park recreation and

open space facilities as an element of their general plan, cooperatively with all units of government, to meet the need. Cities have the responsibilities to take necessary action to assure that appropriate elements of the general plan are adopted as integral parts of the county, regional, state, federal, and other governmental agency plans.

- d. Cities have the responsibility to work cooperatively with all community agencies, to insure that all available work and recreation resources within their boundaries are utilized to their fullest in providing for their citizens' recreation.

6. The Role of the Private Sector

The private sector plays an important role in preserving open spaces. Some of their preservation may be open for public use, such as campgrounds and golf courses, some may be open for limited public use such as hunting and fishing clubs, golf clubs, or cemeteries, and some may not be available for public use but still have significant visual impact, such as agriculture.

I. Implementation Methods

This open space element envisions many methods of implementation. The best method will differ depending on the type of open space to be preserved and its location. Several types of open space are included in the element such as parks, agricultural areas,

bodies of water, ecological and watershed preserves, areas of geologic hazards, mineral extraction sites and areas for shaping urban development. The chart on the following page shows methods for implementing plans for each of these types of open space.

	Recreation	Agriculture	Water	Ecological & Watershed Preserves	Geological Hazards	Mineral Extraction	Shaping Urban Development	Historic Sites	Access to Public Lands
I. Acquisition of Fee									
A. Purchase	X		X	X			X	X	X
B. Donation of Gift	X		X	X			X	X	X
C. Tax foreclosures	X		X	X			X	X	X
D. Trade	X		X	X			X	X	X
E. In Lieu of Fee Dedication	X		X	X			X	X	X
II. Acquisition of Less than Fee									
A. Easement	X		X	X	X		X	X	X
B. Leases	X			X					X
C. Rights of Entry				X					X
D. Covenants Deed Restrictions		X		X				X	X
E. Other Development Rights		X		X					X
III. Regulation									
A. Conservation zoning-flood plains, agriculture & Minerals		X	X		X	X		X	
B. Subdivision ordinances requiring land dedication	X			X	X		X		
IV. Preferential Tax Assessment									
A. Contracts or Agreements		X							
B. State designated land uses	X								
V. Private Investments to enhance private property	X	X	X	X		X	X	X	

J. Methods Most Applicable to this Open Space Program

As can be seen on the chart, there are several methods available for implementing an open space program. The program that has been emphasized in this initial open space element has been oriented towards recreation and is coordinated with the park and recreation element. The program describes recreational sites that should be acquired. Most conservationists who have studied open space practices in the United States have held that recreational land must be acquired in fee rather than through such regulatory techniques as zoning or by less-than-fee acquisition. They recommend purchase because of the usually intense use of recreational land.

This does not imply that other than acquisition-in-fee methods should not be explored and used whenever possible. Generally these are less expensive methods of implementation. There are some sites in the open space element which are recognized for their importance as open space. These sites offer potential for some of these less-than-fee acquisition methods. Particularly applicable to these non-programmed sites are easements, joint use of existing public easements such as overhead power transmission lines, agricultural preserve contracts, and hazardous area zoning such as flood plain zones.

K. Potential New Methods and Sources of Funds

There have been several proposals for new sources of acquisition

funds for open space land. Some of these proposals could require changes in state or federal legislation and need further investigation. Some proposals that deserve legislation and need further study include sales taxes, users' taxes and real estate taxes. Additional monetary incentive could include income tax deduction for more than the presently permitted 30% limit for donation of land to a public agency, or a state constitutional amendment requiring preferential assessment of land when the open space use is a part of a regional master plan.

V. CONSERVATION AND PRESERVATION

The demand for use of the County's open space land and resources that the land produces is not merely a function of factors within the County, but is related to the demand for resources, state and nation-wide. Demand is largely a function of population and disposable income, as either increase, the demand upon the land increases and to meet these production demands, marginal lands normally considered natural open space areas, are graduated to a higher use.

A. OPEN SPACE FOR PUBLIC SAFETY (See Map IV)

The demand for land, both for urban expansion and rural recreational, or speculative land projects will result in proposals for areas which are hazardous, such as flood plains, airport flight patterns and geological unsafe lands as follows:

1. Flood Plain Areas

The flood plains of rivers and streams were formed by nature as additional drainage areas for flood flows resulting from heavy snowmelt or rainstorms. A flood problem comes into being only when man introduces residential, commercial, industrial or agricultural uses into these areas.

Historically, this County has undertaken large-scale works (reservoirs, channel enlargements, flood walls, levees, etc.), to prevent or reduce the natural extensions of flood inundation.

Merced County is subject to two types of floods: 1) those that occur during late fall and winter months, primarily as a result of prolonged rainstorms in the mountains and valley floor; 2) those that occur during the spring and early summer months, primarily as a result of the melting of the winter snowpack in the high areas of the Sierra Nevada. Extensive flood control improvements have been undertaken within this County and adjacent counties, that have greatly reduced the flood-prone areas, and in doing so, reduced natural open space utilized as wildlife habitat and passive recreational areas.

Recommendations

- a. That Ordinance # 586, "Flood Plain Ordinance", be strictly adhered to for the protection of open space.
- b. That studies be instigated to find the best ways to manage watershed lands, to establish limits to the abuse of watershed lands, and to provide the basis to best accomplish efficient and nondestructive watershed management.
 - 1) Protecting land against soil depletion caused by erosion, loss of nutrients, water logging and flooding.
 - 2) Rebuilding eroded and depleted soils.
 - 3) Stabilizing runoff and sediment producing areas.
 - 4) Reducing water and sediment damage.

- c. That pollution of groundwater be prevented by
 - 1) sufficient leaching or irrigation runoff.
 - 2) strict control of location of septic tanks, with possible denial for their use in certain areas.
- d. Solid waste disposal areas to be located where no possibility for groundwater pollution exists.
- e. To prevent overdraft of groundwater storage, or to insure sufficient recharge to replenish this most valuable element.
- f. To investigate thoroughly the water needs as well as the waste discharge, before permitting new industry to settle in Merced County. The creation of a few new jobs may not weigh enough to risk contamination of our water supply or air.
- g. To continue the investigation and consideration of water needs and waste discharges pertaining to urban development that risk contamination of our supply of water and air.

2. Faults

The unexpected occurrence of an earthquake within the County boundary would forcefully illustrate the importance and difficulty of seismic zoning. More than ever before, counties and cities are seeking guidance concerning "environmental hazards" of all types that should be taken into account in land use planning.

The geologic and soils studies made prior to use can determine the following facts:

- a. Presence of adversely oriented planes or zones of weakness.
- b. Active faults.
- c. Landslides.
- d. Expansive (shrink-swell characteristics).
- e. Poor drainage characteristics in existing conditions.
- f. Active creep of soils and bedrock and slopes.
- g. Strength of soils and bedrock to support structures.
- h. Compaction and consolidation characteristics.
- i. Other geologic and engineering factors pertinent to the particular intended use of the land.

The severity of seismic disturbances can be expressed in several ways. The magnitude (Richter Scale) is related to the amount of energy released. The scale is logarithmic, so that a magnitude of 7 is a disturbance that is 10 times as large as a magnitude of 6. A magnitude of 2 hardly disturbs the sensitivities of man.

The modified Mercalli Scale is a measure of the intensity of the earthquake effects, and is given in values from I to XII (e.g. I "not felt except by very few favorably situated;" and XII - "Damage total, lines of sight disturbed and objects thrown into the air").

There are three basic types of faults, based upon relative movement. They are called:

- a. A normal fault, in which a hanging wall has moved down relative to the footwall.

- b. A reverse fault in which the hanging wall has moved up to the footwall. A special case of the reverse fault is called a thrust fault. It has a low angle of movement, generally less than 45° . Ortigalita Fault in the western part of Merced County is a "thrust fault".
- c. A lateral fault (Strike-Slip Fault) in which the rocks on either side move laterally past each other. The San Andreas fault is an example of c. San Andreas fault lies 22 miles west of Ortigalita Fault.

In reality, most faults exhibit a combination of vertical and lateral movement and are called oblique faults.

Recommendations

- a. That a seismic element be prepared and coordinated with cities, to insure a reasonable degree of knowledge concerning hazardous areas.
- b. That knowledge acquired be incorporated into Land Use Controls and the adopted Building and Grading Code of the County.

3. Airports

The presence of an airport physically creates open space within its boundary, traffic as to type and frequency causes the areas under approach and departure paths to become subject to "noise pollution".

The airports of the County, with the exception of the military airbase, have not expanded operations to such a degree, that a concerted reaction of the citizens to the generated noise has occurred. Citizen annoyance and recreation can and has resulted in curtailment of civil and military aviation activity.

a. Uses Around Airports

With the exception of open air assemblies and residential and certain institutional developments, most land uses are compatible with airport operations from a noise standpoint. Housing can be made acceptable in some noise-affected areas through adequate sound-proofing. Outdoor living, however, may still encounter a critical noise problem. In addition, the location of highways close in under approach areas should be avoided since motorists may be distracted by low-flying aircraft. Electrical plants, power lines, gas and oil facilities, and smoke-producing trash dumps can be hazards to aircraft, as can some natural and agricultural uses, which may attract birds.

- 1) Natural Uses are compatible with aircraft noise, and most wildlife adapt to noise; however, flood areas and swamps may cause a problem in the rainy period, and ponds, swamps, and game and fish preserves may cause a bird hazard. Game preserves should be fenced to restrict animals.

- 2) Agricultural Uses are compatible with aircraft noise, with a few exceptions. Poultry farms should not be located under the approach and climbout areas; poultry crowding together because of high noise levels may suffocate or may produce few eggs. Mink farms are not a good use since the noise tends to cause the mink to destroy their young. Grain and seed crops may attract birds, which cause accidents.
- 3) Highways and Railroads are good uses except when close in (within one-half mile) under the approach area. There they may constitute a psychological hazard to pilots and motorists rather than a noise problem.
- 4) Recreational Areas generally are good land uses around an airport; the following are exceptions because of airport noise exposure and the hazard involved in a large concentration of people in the open:
 - a) Playgrounds -- marginal, avoid in approach areas.
 - b) Athletic fields -- marginal in airport areas.
 - c) Outdoor theaters -- poor in airport areas.
 - d) Fairgrounds and race tracks -- poor in airport areas.

- e) Municipal Utilities are compatible as far as noise is concerned, but the following present obstructions of hazards:
- (1) Gas and oil facilities -- marginal under approach surfaces.
 - (2) Electrical plants -- marginal because of hazard, particularly under approach surfaces.
 - (3) Power lines -- poor because of hazard.
- In addition, trash dumps and incinerators create a smoke problem, and garbage dumps attract birds.
- f) Commercial Uses. Restaurants, shopping centers, office buildings, public buildings, banks, gasoline stations, hotels, motels, and theaters are good uses on an airport or adjacent to it but should incorporate sound reduction in buildings for internal livability. None of these should be constructed in approach areas.
- g) Industrial Uses were found acceptable except for those that produce smoke, electronic interference, or misleading lights. Sound conditioning of structures may be required to reduce exterior noise to acceptable levels for internal operations. Some industries cannot be located near airports because noise and vibrations interfere

with delicate instruments.

h) Residential and Certain Institutional Uses

are considered poor within approximately three miles of the airport, and particularly under the approach and climbout surfaces because of both, noise and hazard. Sound conditioning will reduce noise in the buildings, but it will not reduce noise during outdoor activity.

Recommendations

- a. An airport systems plan for the County of Merced should be prepared as soon as possible and included in the County's Transportation Plan.
- b. That noise pollution created by aircraft activities be made a part of the noise element to be prepared for the County of Merced.
- c. That Ordinance # 510, "Airport Zoning Ordinance", be applied to those areas around existing airports that are considered hazardous due to noise generated. These zones should provide for airport traffic expansion.

MERCED COUNTY

LEGEND



B. OPEN SPACE FOR NATURAL AND HUMAN RESOURCES (See Map V.)

Open Space can take the form of cultivated fields, orchards, range land, and public or private parks.

It can be open grassy fields for picnicking, forested or open land for watersheds, marshlands for wildlife. All of these types of areas contribute to the fulfillment of man in his relationship with the environment.

1. Agriculture

While the population of California and the United States has been expanding, and will continue to do so for at least the next 20 years, the extent of the prime food producing areas of California is decreasing.

"Population growth", according to the University of California Agricultural Extension, "has had and will continue to have tremendous impact upon California agriculture. Much prime agricultural land has been lost to provide space for people, and more will be - approximately 65,000 acres per year. At this average rate, the urban population will require 4.8 million acres in the year 2000, and 6 million in 2020, compared with 2.1 million acres in 1960." According to the "California Tomorrow Plan", California once had 8.7 million acres of prime agricultural land. Over two million acres of this land have already been urbanized. If present trends continue, by 1980 almost one

million additional acres will be subdivided, making a total loss of about one-third of our best agricultural land. The demand for new housing, industry, and stores to service the needs of our growing population has resulted in the loss of this land. While prime agricultural land (high fertility, good drainage, low erodibility, etc.) is ideal for farming, it is also much sought after for urban development. Because of its innate characteristics, development on prime agricultural land can be accomplished while minimizing development costs and maximizing profits, often at the general public's expense. The conversion of land from agricultural to urban uses is a gradual, prolonged process, which erodes at our prime agricultural land piece by piece. The loss of this land also represents a loss of valuable open space, and the possible destruction of wildlife habitat. Furthermore, the more intensive use of what prime agricultural land remains, could result in its destruction as well through over-use. As we continue to subdivide our prime agricultural lands, we are gradually forced to increasingly cultivate more marginal soils, less fertile, and often in water deficit areas. Farming these soils may require heavy fertilization plus the added cost of water, which in some cases may have to be transported via canals, aqueducts, etc. The added costs

of production are ultimately passed on to the consumer. A more rapid form of the process is the intrusion of residential subdivisions into agriculturally productive areas. This urban use is highly incompatible with normal farm operations, e. g., crop-dusting, blowing dust from cultivation, etc., and prevents the expansion of existing operations. This intrusion will also effect taxation on surrounding agricultural land, and ultimately result in its conversion from agricultural to urban use as well.

Recognizing the importance of prime agricultural land as a food producing, economic resource, this element advocates the preservation of prime agricultural land whenever possible.

It would be unrealistic, to expect that all prime agricultural land within the County will be preserved, i.e., the existing City of Merced is largely built upon prime soils, and some additional prime land will have to be sacrificed in order to accomodate the anticipated growth. However, the further conversion of prime soils from agricultural to urban uses should be contained within Merced's sphere of influence, and should not preclude the possible preservation of prime agricultural land within the urban area.

The California Land Conservation Act has, as its basic purpose, the preservation of the Class I and II lands for agricultural purposes near metropolitan areas, since zoning to exclusive agricultural zones seemed to have limited effectiveness. As an integral part of this goal, there was included the limitation of premature and unnecessary conversion of prime agricultural land to urban uses.

Under this program, a land owner signs a contract, guaranteeing that his land will not be used or divided except for the production of agricultural products for commercial reasons and related uses for a period of ten years. Such a contract is automatically extended each year, so that it will continue indefinitely, unless the owner requests termination. Cancellation may not be granted unless it is determined that such action is in the public benefit, and that there is no other land not under contract which can be used for the same purpose. The California Land Conservation Act, discussed above, was designed to protect prime agricultural land from forced conversion to urban or other non-agricultural uses, because of tax schedules unrelated to the ability of the land to produce wealth, or because of other pressures. The rationale basic to this effort was that large amounts of land were prematurely and unnecessarily being converted to urban uses, or otherwise withdrawn from agricultural use, both,

near metropolitan areas, and in the hinterlands.

Recommendations

- a. That expansion of urban growth areas should be in an orderly manner, with coordinated utility services, to avoid fragmented urban growth expansion.
- b. That the agriculture zoning should preclude those uses that conflict with agricultural-industrial uses.
- c. That an attempt be made to retain agriculture as the primary extensive land use of the County.
- d. That the Williamson Act be recognized as an alternate means of preserving agricultural lands from premature urban development, when agricultural zoning may not be deemed sufficient.

2. Mineral Production

Sand and gravel extractive production can be classified as the only significant production of mineral resources in the County.

There is a great paradox in the sand and gravel business. Rapid urbanization creates the need for the mineral, and sooner or later, as encroachment takes place upon the facility, its very existence is threatened by citizens who object to the inconvenience produced. In order for sand and gravel companies to keep delivering prices down, the facility must be located strategically close to use. These extractive lands are those that primarily are open

and used to withdraw natural resources from the earth, such as oil, sand, gravel, clay, etc. These lands may remain open until resources are completely depleted, or until technology makes it feasible for most of the land to be developed retaining small sites for extractive purposes. Extractive lands are not considered permanent open space; however, through land use control of the operations, a future open space area for passive or active recreational facilities can occur.

It is important that "post-use" planning of sand and gravel operations be initiated early in the development stages of the resource. Once sand and gravel operations are terminated, it is too late to decide what to do with a hole in the ground.

Recommendations

- a. That strict control be maintained on sand and gravel extraction from streambeds.
- b. That the County protect all important salmon and steelhead spawning areas, to preserve natural spawning gravel, in that area of the Merced River designated as a salmon spawning area by the California State Legislature.
- c. That land be rehabilitated by owner/operator after extraction has been completed.

3. Recreation

The designation of significant open space areas, which can be used for various recreational purposes, and the establishment of protective zoning is a basic step toward meeting the recreational needs of the citizens of the County.

Individuals choose their recreation activities within the range of opportunities. In the case of outdoor recreation, it competes with other needs for the same resources - forestry, agriculture, grazing, flood control, water supply, etc. The ideal solution to this problem is combination of uses to include recreational uses.

Recommendations

- a. That public access to water bodies be preserved whenever possible.
- b. That the Master Recreation Plan of the County be reviewed as to recreational needs for the next twenty years.
- c. That implementation of Section 11546 of the Subdivision Map Act be discussed, which states: "The governing body of a city or county may by ordinance require the dedication of land, the payment of fees in lieu thereof, or a combination of both, for park or recreational purposes as condition to the approval of a final subdivision map, ..."

- d. To discuss possible "greenbelt zoning" along rivers and creeks, to protect human life in flood plain areas, as well as riparian habitat for wildlife.
- e. That the amenities of the riverbeds and streams be preserved for public enjoyment wherever possible.

4. Wildlife

Man progressing up the evolution ladder has learned how to alter the natural way of things to fit his needs. This alteration has caused the disappearance of many species of wildlife.

Under natural laws, a balance of carrying capacity is reached, with the inclusion of man, there are unbalancing man made factors such as streets, houses, canals, guns, etc.

Wildlife cannot survive, and possibly man cannot survive either, unless he learns to live in and maintain a balanced biological interrelationship.

Recommendations

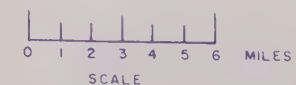
- a. That habitats of unique and endangered species be protected by discouraging non-compatible developments.
- b. That agricultural or ranching interests be encouraged to maintain or develop areas of natural habitat.

- c. That every effort be made to retain the rivers and streams of the County in a natural state.
- d. That the County should encourage and support public education that will alert citizens as to type of animal life, which needs protection.
- e. That the following be investigated to determine the importance of maintaining or improving:
 - 1) Access to streams, lakes, reservoirs, and public lands through removal of physical, legal and economic barriers.
 - 2) Productivity of streams, lakes and reservoirs through improved land, water and fishery management.
 - 3) Scope and use capacity of waterfowl management areas.
 - 4) Rehabilitation of streams to their former importance for anadromous fish.
 - 5) Adequate streamflows and physical stream improvement, including gravel cleaning and vegetation control are necessary.
 - 6) Access and facilities are required in conjunction with stream rehabilitation to manage and harvest the fish resources.

MERCED COUNTY



OPEN SPACE FOR NATURAL
& HUMAN RESOURCES



C. OPEN SPACE FOR SCENIC CORRIDORS (See Map VI)

Scenic corridors as used in this element not only include the road, rail, river or transmission way, but extend to the areas around them that are of sufficient scenic quality to be acquired by state or local jurisdictions, or areas under private ownership to which development controls (zoning) should be applied for purpose of preserving and enhancing relatively nearby views, or maintaining unobstructed distant views along the scenic way. Recreational uses within these areas can include roadside rests, cycling, riding and hiking trails.

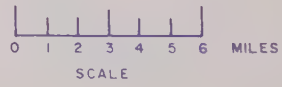
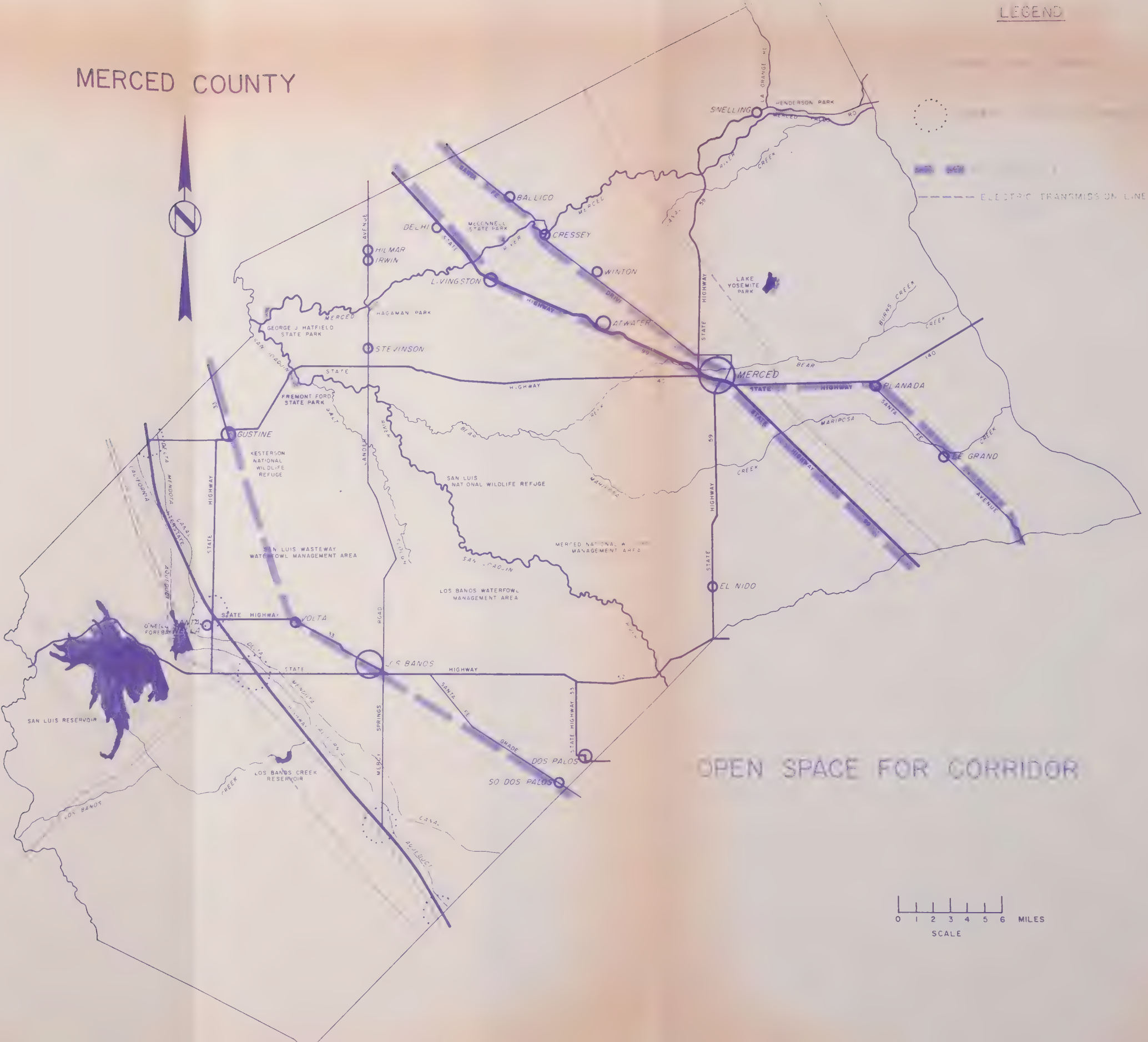
Criteria for Selection

1. The right-of-way and the adjacent area should have intrinsic scenic value and diversity of experience, such as transition between different landscape.
2. The right-of-way (scenic corridor) should, if possible, link up with other scenic, historical or recreational points of interest.
3. The proximity of these ways or corridors to urban areas must be taken into account to determine the daily or weekly usage.
4. All areas must be analyzed as to their recreational potentiality, either passive or active.

Recommendations

- a. That normal uses of land be permitted, while preserving natural amenities, wonders, and cultural sites.
- b. That all scenic easements remain free and clear of any structure or improvement other than planting, unless required for public necessity, as a means of providing unobstructive areas for recreational trails.
- c. That outdoor advertising signs and height be controlled by County Ordinance to protect the vista of an area.
- d. That landscape design and maintenance be required by owner in scenic corridors to provide added visual interest, to frame scenic, and to screen unsightly views.

MERCED COUNTY



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Appendix IX - Flood Control

Appendix X - Irrigation and Drainage

Appendix XIII - Fish and Wildlife

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